REMARKS

Applicants appreciate the consideration shown by the Office, as evidenced by the Office Action, mailed on October 22, 2003. In that Office Action, the Examiner objected to the specification, objected to Claims 80-84 and 98, and rejected Claims 1-98. As such, Claims 1-98 remain in the case with none of the claims being allowed.

The October 22 Office Action has been carefully considered. After such consideration, and Claims 1, 11-14, 17-20, 24, 25, 28, 29, 37, 46-49, 52-55, 59, 66, 67-69, 76, 79, 80-84, and 98 have been amended. In addition, the Abstract and paragraph [0036] of the disclosure have been amended. Applicants respectfully request reconsideration of the application by the Examiner in light of the above amendments and the following remarks offered in response to the October 22 Office Action.

Objection to the Specification

The Examiner has objected to the Abstract of the Disclosure because of inclusion of legal phraseology, such as "comprises," and has required correction. Applicants submit that lines 3 and 7 of the Abstract have been amended accordingly to remove the terms "comprises" and "comprise" and that the Examiner's objection is thus overcome.

Objection to the Claims

The Examiner has objected to Claims 80-84 and 98 due to informalities, and has required correction.

Regarding Claims 80-84, the Examiner states that the preambles of these claims each refer to "The method" whereas Claim 76, from which they depend, sets forth "A system." Accordingly, Applicants submit that the preambles of Claims 80-84 have been amended to refer to "The system" as claimed in Claim 76, and that the Examiner's objection to these claims is thus overcome.

Regarding Claim 98, the Examiner states that the claim is missing its numerical identifier. Applicants submit that the claim has been amended to include the numerical identifier and that the objection to Claim 98 is thus overcome.

Rejections under 35 U.S.C. §103(a)

Claims 1-98 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Fulton et al. (U.S. Patent 6,316,377) in view of Hettiarachchi et al. (U.S. Patent 5,602,888).

Applicants submit that independent Claim 1 has been amended to recite the step of providing a plurality of catalytic nanoparticles comprising at least one noble metal. Support for the amendment can be found, for example, in paragraphs [0016], [0017], and [0018] of the specification.

In addition, independent Claims 1, 28, 37, 66, and 76 have been amended to recite the step of adding the plurality of catalytic nanoparticles to the high temperature water in a hot water system. Dependent Claims 11-14, 17-20, 46-49, 52-55, and 67-69 have also been amended to refer to the step of adding the catalytic nanoparticles to the high temperature water. Support for these amendments can be found, for example, in paragraphs [0038] through [0044] of the specification.

Applicants submit that, in order to establish a *prima facie* case of obviousness, the combination of references must either teach or suggest all the limitations of the claimed invention.

Accordingly, Applicants submit that the combination of Fulton et al. and Hettiarachchi et al. fail to teach or suggest the addition a plurality of nanoparticles comprising at least one noble metal to high temperature water in a hot water system of.

Applicants submit that Fulton et al. do not teach the *addition* of previously prepared nanoparticles to high temperature water, but instead teach that nanoparticle be *formed* in hydrothermal conditions - i.e., in hot water at high pressures. See the Abstract;

column 1, lines 16-18; column 2, lines 41-44; and Examples 1 and 2 of the reference. Applicants further submit that, by teaching that nanoparticles must be synthesized *in situ* under hydrothermal conditions, the reference actually teaches *away* from adding nanoparticles that are made outside the high temperature water environment of a nuclear reactor, turbine, etc., as taught by the present invention. Applicants submit that Hettiarachchi et al. do not teach the addition of a plurality of nanoparticles to the high temperature water.

Applicants further submit that neither Fulton et al. nor Hettiarachchi et al. teach nor suggest the addition of *a plurality of nanoparticles comprising at least one noble metal*. Fulton et al. do not teach or suggest the formation of nanoparticles comprising at least one noble metal. The reference instead teaches the synthesis of nanoparticles composed of a rare earth element, scandium, yttrium, oxygen, and fluoride. See the Abstract; column 2, lines 40-41; and column 4, lines 42-45, of the reference. Applicants further submit that Hettiiarachchi et al. do not teach or suggest the addition of *nanoparticles* comprising at least one noble metal.

Applicants therefore submit that, because the combination of references proposed by the Examiner neither teach nor suggest all of the limitations of the present invention, the rejection of Claims 1-98 under 35 U.S.C. §103(a) as being unpatentable over Fulton et al. in view of Hettiarachchi et al. is successfully overcome.

Voluntary Amendments to the Specification and Claims

Applicants submit that paragraph [0036] of the disclosure has also been amended to correct a misspelling.

Applicants submit that Claims 24, 25, 28, 29, 37, 59, 66, 76, and 82 have been voluntarily amended to recite the limitation that the plurality of nanoparticles has a mean particle size, as recited in each of the above-referenced claims. Support for the amendment can be found, for example, in paragraphs [0016], [0017], and [0018] of the specification.

Applicants submit that Claim 79 has been voluntarily amended to provide proper antecedent basis for the claim.

In light of the amendments and remarks presented herein, Applicants submit that the case is in condition for immediate allowance and respectfully requests such action. If, however, any issues remain unresolved, the Examiner is invited to telephone the Applicants' counsel at the number provided below.

Respectfully submitted,

Robert P. Santandrea
Counsel for Applicants
Registration No. 45,072
Telephone: (518) 387-6304

Schenectady, New York
January 14, 2004